



US009543466B2

(12) **United States Patent**  
**Morikazu**

(10) **Patent No.:** **US 9,543,466 B2**  
(45) **Date of Patent:** **Jan. 10, 2017**

(54) **METHOD FOR FORMING SHIELD  
TUNNELS IN SINGLE-CRYSTAL  
SUBSTRATES**

(56) **References Cited**

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(71) Applicant: **DISCO CORPORATION**, Tokyo (JP)

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(72) Inventor: **Hiroshi Morikazu**, Tokyo (JP)

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(73) Assignee: **Disco Corporation**, Tokyo (JP)

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(\*) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 0 days.

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(21) Appl. No.: **15/013,041**

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(22) Filed: **Feb. 2, 2016**

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(65) **Prior Publication Data**

US 2016/0225945 A1 Aug. 4, 2016

*Primary Examiner* — Julio J Maldonado

*Assistant Examiner* — Cory Eskridge

(74) *Attorney, Agent, or Firm* — Greer Burnes & Crain  
Ltd.

(30) **Foreign Application Priority Data**

Feb. 2, 2015 (JP) ..... 2015-018629

(57) **ABSTRACT**

(51) **Int. Cl.**

**H01L 21/00** (2006.01)

**H01L 33/00** (2010.01)

**H01L 21/78** (2006.01)

(52) **U.S. Cl.**

CPC ..... **H01L 33/0095** (2013.01); **H01L 21/78**  
(2013.01)

(58) **Field of Classification Search**

None

See application file for complete search history.

A method of processing a single-crystal member includes setting the peak energy density of a pulsed laser beam to a value in a range from 1 TW/cm<sup>2</sup> to 100 TW/cm<sup>2</sup>, and applying the pulsed laser beam to the single-crystal member while positioning a converged point of the pulsed laser beam at a predetermined position spaced from an upper side of the single-crystal member to grow a fine hole and an amorphous region shielding the fine hole from the upper side of the single-crystal member, thereby forming a shield tunnel in the single-crystal member.

**2 Claims, 7 Drawing Sheets**

